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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,601	10/01/2003	Guolin Xu	10013.0001US	7976

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EXAMINER

KOCZO JR, MICHAEL

ART UNIT PAPER NUMBER

3746

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/29/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/676,601

Applicant(s)

XU ET AL.

Examiner

Michael Kocz, Jr.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Drawings

The drawings are objected to because of the following reasons:

In figure 11, a lead line is missing a numeral. Also, why are the areas identified by numerals 10 and 34 hatched?

The drawings are objected to for not complying with 37 C.F.R. 1.84(i) which requires that the plane upon which a sectional view is taken should be indicated on the general view by a broken line, the ends of which should be designated by numerals corresponding to the figure number of the sectional view and have arrows applied to indicate the direction in which the view is taken (see line X-X in figure 1).

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the slits of claim 1 must be shown or the feature(s) canceled from the claim(s). Also, the drawings do not show “at least a portion of the outlet channel is opposite the outlet”. See figure 4 which shows that no portion of the outlet channel 18 is opposite the outlet 26. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must

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be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The use of the trademark Mylar™ has been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

The disclosure is objected to because of the following informalities:

On page 7, line 3, there is no figure 4B in the drawings.

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: there is no basis in the specification for "at least a portion of the outlet channel is opposite the outlet".

Appropriate correction is required.

Claim Objections

Claim 3 is objected to because of the following informalities: in line 1, --the-- should be inserted preceding "inlet". Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 5 and 10 to 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Phelps (US 5,394,840). See pump 16 which has a flexible layer 48 having movable inlet and outlet flaps 60 and 62, respectively. The spacing between the flaps and the stationary portion of the flexible layer is readable as a slit. Claim 13 is being treated as a product-by-process claim and the product itself does not depend on the process of making it. The structure as claimed is identical to the corresponding structure of the prior art. The process of making the product is therefore not patentably limiting.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 4, 5, 10, 11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamper et al (US 6,033,191). Kamper et al disclose the invention substantially as claimed. However, Kamper et al do not disclose that the flexible layer 3 has inlet and outlet slits. Kamper et al disclose that the flexible layer has inlet and outlet holes 12 and 18, respectively. The particular shape of the holes, whether round, square or elongated as a slit, is deemed to be a matter of design choice since it does not alter the function of the opening. To therefore shape the holes 12 and 18 of Kamper et al in the shape of slits would have been obvious to one of ordinary skill in the art. Claim 13 is being treated as a product-by-process claim and the product itself does not depend on the process of making it. The structure as claimed is identical to the corresponding structure of the prior art. The process of making the product is therefore not patentably limiting.

Claims 1 to 5, 10, 11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bustgens et al (US 5,725,363). Bustgens et al disclose the invention substantially as claimed. However, Bustgens et al do not disclose that the flexible layer 3 has inlet and outlet slits. Bustgens et al disclose that the flexible layer 3 has inlet and outlet holes 11 and 15, respectively. The particular shape of the holes, whether round, square or elongated as a slit, is deemed to be a matter of design choice since it does not alter the function of the opening. To therefore shape the holes 12 and 18 of Bustgens et al in the shape of slits would have been obvious to one of ordinary skill in the art. Claim 13 is being treated as a product-by-process claim and the product itself does not depend on the process of making it. The structure as claimed is identical to the corresponding structure of the prior art. The process of making the product is therefore not patentably limiting.

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Claims 6 to 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over either of Phelps, Kamper et al or Bustgens et al, as applied to claim 1 above, and further in view of Rosenberg (US 3,386,388). Phelps, Kamper et al or Bustgens et al disclose the invention substantially as claimed. However, Phelps, Kamper et al or Bustgens et al do not disclose that the flexible layer is made of a polymeric material. Rosenberg discloses a membrane which can be made of many different types of materials such as polycarbonate. Polycarbonate has good flexing properties and can withstand chemical attack. In view of this teaching, it would have been obvious to make the flexible layer of each of Phelps, Kamper et al or Bustgens et al of polycarbonate.

Claims 6, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over either of Phelps, Kamper et al or Bustgens et al, as applied to claim 1 above, and further in view of Davis et al (US 3,715,174). Phelps, Kamper et al or Bustgens et al disclose the invention substantially as claimed. However, Phelps, Kamper et al or Bustgens et al do not disclose that the flexible layer is made of Mylar™. Davis et al disclose a membrane which can be made of Mylar™. Mylar™ has good flexing properties and can withstand chemical attack. In view of this teaching, it would have been obvious to make the flexible layer of each of Phelps, Kamper et al or Bustgens et al of Mylar™.

Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over either of Phelps, Kamper et al or Bustgens et al, as applied to claim 1 above, and further in view of Bishop (US 6,042,345). Phelps, Kamper et al or Bustgens et al disclose the invention substantially as claimed. However, Phelps, Kamper et al or Bustgens et al do not disclose that the flexible layer is activated by a bimorph PZT cantilever. Bishop et al disclose a diaphragm

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pump wherein the diaphragm is actuated by a bimorph PZT cantilever. This allows for finer control of the diaphragm position and therefore the amount of fluid pump as compared to fluid pressure actuated diaphragms. In view of this teaching, it would have been obvious to substitute a bimorph PZT cantilever for the pressure actuation of either of Phelps, Kamper et al or Bustgens et al.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

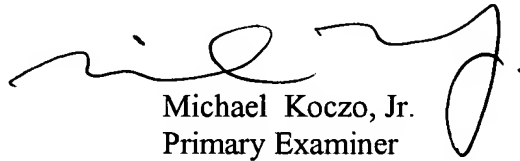
Any inquiry relating to patent applications in general should be directed to the Patent Assistance Center at 1-800-786-9199.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Koczo, Jr. whose telephone number is 571-272-4830. The examiner can normally be reached on M-Th; 7:00-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ehud Gartenberg can be reached at 571-272-4828. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Michael Koczo, Jr.
Primary Examiner
Art Unit 3746